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amended*

a recording head for ejecting ink droplets, based on the raster data, while moving over a recording medium with a plurality of ink ejection nozzles arranged thereon, wherein said interpreter includes a pattern changing means for checking whether the data pattern indicates solid-drawing in each of the thick line or the filled-in area for which the drawing is indicated and, if the solid-drawing is indicated, changing the data pattern for the thick line or filled-in area to a lower-density pattern.

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#### REMARKS

Reconsideration is respectfully requested.

Claims 1-12 are pending in this application of which claims 1, 4 and 7 have been amended.

#### 35 U.S.C. §102(b) REJECTION

In the Office Action dated October 11, 2001, claims 1, 4, 5, 7, 10 and 11 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Miller et al (US 5,731,823). Applicant respectfully traverses this rejection.

(1) The Examiner indicates that Miller et al. disclose the "checking ... whether the data pattern [] indicates solid-drawing in a thick line or filled in area for which drawing is indicated (step 80, column 6, lines 27-36)". However, this location in the Miller et al reference is to refer to the "statistics collected on the page description" such as graphics (45, 46), text (44), and scanned images (48). The "fill color" and "line thickness"

are checked just as the attributes of the graphics. Moreover, the resultant characterization data (84) is used to generate a rasterization control signal 90 (column lines 14-17, lines 58-63; step 88) or used as an input to modify the page description for use on a specific type of hardcopy print device (step 92), but not to used to reduce the print density.

(2) The Examiner also indicates that Miller et al. disclose "if the data pattern indicates solid-drawing, changing the data pattern to a lower density pattern thereby preventing ink splash during printing (column 9, line 59 - column 10, line 6)". However, this pointed out location in Miller et al. says:

In step 112, the density of pixels on the page may be measured and used to control printing characteristics to ensure the best quality and highest throughput. For instance, if the page has a large area of dense color pixels, step 112 may direct printing with a higher shingling mode to reduce color bleed, .... The term "shingling" refers to a mode of operation for printer 10 where the printer lays down only a percentage of the total ink dots available in a given print pass, and makes several passes to complete a raster.

The "large area of dense color" could be "thick line or filled-in area", but are not necessarily the same as them. Moreover, in Applicant's invention, "if the data pattern specified to a particular thick line or filled-in area indicates solid drawing", "the data pattern for that particular thick line or filled-in area" is changed "to a lower-density pattern, thereby preventing an ink splash during printing". In contrast, in Miller et al, it is read that the printing of all the elements

to be printed including those of lower density are subjected to the "shingling" to reduce color bleed. Furthermore, the "shingling" mode seems to be merely the "multi-pass recording" which will suffer from the drawbacks that the recording speed in the multi-pass recording method is degraded, as mentioned in the background art of the present application.

Thus, it is clear that Miller et al. fail to teach Applicant's inventions as recited in claims 1 and 7 (and hence, dependent claims 4, 5, 10 and 11).

35 U.S.C. §103(a) REJECTION

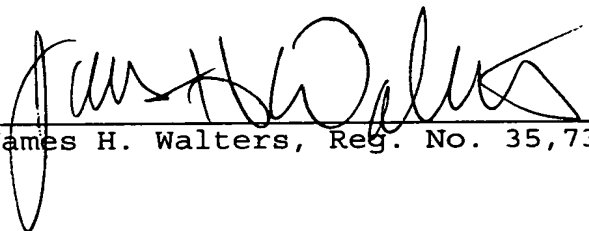
Claims 2 and 8 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Miller et al (US 5,731,823) in view of Rylander (US 5,602,572). Claims 3 and 9 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Miller et al (US 5,731,823) in view of Rylander (US 5,602,572) and further in view of Mizutani (US 5,774,146). Claims 6 and 12 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Miller et al. (US 5,731,823) in view of Albosta et al. (US 5,908,638). Applicant respectfully traverses. All these rejected claims are directly or indirectly dependent from independent claims 1 or 7. As stated above, the Examiner's understanding of Miller et al. seems to be incorrect and, therefore, the Examiner's comments to claims 2, 8, 3, 9, 6, and 12 are respectfully believed not to be applicable, in view of the above comments and explanation of differences. Accordingly, claims 2, 8, 3, 9, 6 and 12 are respectfully submitted to neither

be shown nor suggested by the cited documents, whether the documents are considered alone, or combined.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

In light of the above noted amendments and remarks, this application is believed in condition for allowance and notice thereof is respectfully solicited. The Examiner is urged to contact applicant's attorney at 503-224-0115 if there are any questions.

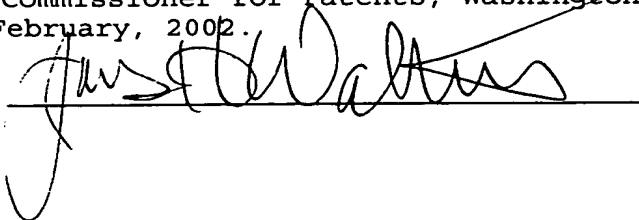
Respectfully submitted,

  
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MARKUP SHEETS SHOWING CLAIM AMENDMENTS MADE HEREIN

1. (Amended) An ink jet recording method which receives a command and data which indicate a drawing of a thick line or a filled-in area, analyzes the command and the data by an interpreter, converts vector data of the thick line or the filled-in area into raster data based on a given data pattern after the analysis, and, based on the raster data, ejects ink droplets while moving a recording head over a recording medium with a plurality of ink ejection nozzles arranged thereon, said method comprising the steps of:

before converting to the raster data, checking by said interpreter whether the data pattern indicates solid-drawing in each of the thick line or the filled-in area for which the drawing is indicated; and

if the data pattern specified to a particular thick line or filled-in area indicates solid-drawing, changing the data pattern for that particular thick line or filled-in area to a lower-density pattern, thereby preventing an ink splash during printing.

4. (Amended) The ink jet recording method according to claim 1 wherein [said data pattern is not changed] if a thickness of [the] a given thick line is smaller than a predetermined thickness no change is the data pattern for the given thick line even if the data pattern indicates solid-drawing.

7. (Amended) An ink jet recording device comprising:  
an interpreter for analyzing a command and data which  
indicate a drawing of a thick line or a filled-in area;

means for converting vector data of the thick line or the  
filled-in area into raster data based on a given data pattern  
after the analysis by the interpreter; and

a recording head for ejecting ink droplets, based on the  
raster data, while moving over a recording medium with a  
plurality of ink ejection nozzles arranged thereon,

wherein said interpreter includes a pattern changing means  
for checking whether the data pattern indicates solid-drawing in  
each of the thick line or the filled-in area for which the  
drawing is indicated and, if the solid-drawing is indicated,  
changing the data pattern for the thick line or filled-in area to  
a lower-density pattern.